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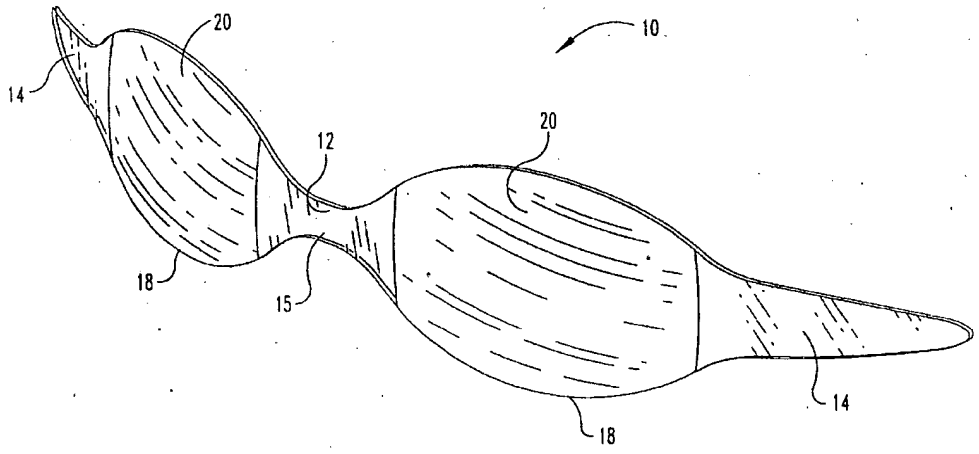
(54) Title: ULTRAVIOLET RADIATION PROTECTIVE EYEWEAR AND PACKAGING



(57) Abstract: A preferred embodiment of the present invention is an eye protector (10) and packaging for providing ultraviolet radiation protection to individuals. The protective eyewear (10) includes a flexible, substantially flat substrate member (12) having eye covering portions (18). A bridge portion (q5) connects the eye covering portions (18), and temple segments (14) extend from opposing ends of the eye covering portions. An ultraviolet absorbing material (20) is applied over the eye covering portions (18). A contact adhesive (16) is applied to the substrate (12), preferably along the temple segments (14). The contact adhesive (16) removably adheres the eyewear (10) to a substantially flat backing member (30) or to an individual's temples.

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ULTRAVIOLET RADIATION PROTECTIVE EYEWEAR AND PACKAGING

FIELD OF THE INVENTION

This invention relates generally to protective eyewear and more particularly to eyewear and packaging for protecting an individual's eyes from natural or artificially generated ultraviolet radiation.

BACKGROUND OF THE INVENTION

Overexposure of an individual's eyes to ultraviolet radiation can damage the eyes leading to potential health problems. For safety, it is often desirable to protect an individual's eyes when the person is exposed to incident ultraviolet radiation whether natural or generated artificially. This is frequently done with sunglasses. At the same time, controlled exposure to ultraviolet radiation can provide benefits to an individual's health and many seek the cosmetic effect of a tan.

While individuals are tanning, either outside or in a tanning bed or booth, they want to protect their eyes while obtaining a tan for the surrounding skin and minimizing untanned areas around the eyes, sometimes referred to as "raccoon eyes." As part of this desire, individuals usually wish to minimize eyewear structure, and dislike nose pieces, temple members or straps, which can leave tan lines. Nevertheless, the eyewear needs to be securely worn to prevent it being inadvertently dislodged during use.

The U.S. Food and Drug Administration has issued regulations, 21 C.F.R. §1040.20, which require that protective eyewear meeting certain standards be provided with sunlamp products. While most tanning salons offer to loan this eyewear to customers, due to the size of the eyewear, potential tanlines, discomfort in wearing the eyewear or sanitary concerns because of reuse, many individuals choose not to use them.

There have been prior attempts to provide reusable or disposable eyewear protection, such as described in U.S. Patent Nos. 5,307,523; 4,793,002; 4,790,031; 4,701,962; 4,656,668; 4,162,542; 4,154,513; 3,092,103 and 3,068,863.

There remains a need for disposable, sanitary eyewear which protects individuals from ultraviolet radiation while minimally interfering with tanning the surrounding skin.

SUMMARY OF THE INVENTION

A preferred embodiment of the present invention is eyewear and packaging for providing ultraviolet radiation protection to individuals exposed to ultraviolet radiation, such as while tanning. In one embodiment, the protective eyewear includes a flexible, substantially flat substrate member having portions covering an individual's two eyes. The substrate has a bridge portion connecting the eye covering portions and temple segments extend from opposing ends of the eye covering portions. An ultraviolet absorbing material is coextensive with the eye covering portions. A contact adhesive is applied to at least portions of the substrate, such as the temple segments. The contact adhesive removably adheres the eyewear to a substantially flat backing member or to an individual's skin.

In alternate embodiments of the present invention the protective eyewear may be disposable. The eyewear can be packaged on a backing member which is configured in folded sheets or in a roll. In one embodiment, the backing member is perforated or scored to assist in separating the backing into sub-packages with at least one of the protective eyewear which may be distributed individually. The eyewear can be made in various shapes, sizes and colors and can be used for non-tanning purposes such as to keep irritants from the eyes.

It is an object of the invention to provide improved ultraviolet protective eyewear for individuals.

Further objects, features and advantages of the present invention shall become apparent from the detailed drawings and descriptions provided herein.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a elevated perspective view of a preferred embodiment of the protective eyewear;

FIG. 2 is a top-down view of the preferred embodiment of FIG. 1;

FIG. 3 is a front plan view of the preferred embodiment of FIG. 1;

FIG. 4 is a rear plan view of the preferred embodiment of FIG. 1;

FIG. 5 is a right side view thereof;

FIG. 6 is a front plan view of the preferred embodiment of FIG. 1 on a backing piece; and,

FIG. 7 is a perspective view of a backing member configured in a roll with a plurality of the protective eyewear.

DESCRIPTION OF PREFERRED EMBODIMENTS

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiments illustrated and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations, modifications, and further applications of the principles of the invention being contemplated as would normally occur to one skilled in the art to which the invention relates.

The present invention provides protective eyewear which individuals may wear while engaged in activities where they are exposed to ultraviolet radiation, such as tanning. The tanning activity may take place outdoors or artificially indoors in a tanning bed, a tanning booth or with a similar sunlamp product. The present invention provides inexpensive, disposable protective eyewear which may be worn during tanning and then discarded. The packaging of the eyewear allows it to be purchased and shipped in bulk and then dispensed for individual use.

According to one preferred embodiment, as illustrated in FIGS. 1-5, eye protector 10 is based on a flexible, substantially flat substrate member 12. Optionally, substrate 12 is made from a material which is substantially transparent to optical and ultraviolet radiation, such as a plastic, ultraviolet transparent film. Substrate 12 includes eye covering portions 18, bridge portion 15 which connects eye covering portions 18, and temple segments 14 extending from opposing ends of eye covering portions 18. Although substrate member 12 could be made from separate pieces which are then connected, preferably substrate member 12 is one piece. By way of example, substrate member 12 is made from a clear 2 mil polypropylene material.

Contact adhesive 16 is applied to at least temple segments 14. In alternate embodiments, contact adhesive 16 is applied to bridge portion 15 and/or the periphery of eye covering portions 18. Contact adhesive 16 functions to maintain the eyewear in place on the individual's face during use or on a backing material,

but allows removal when desired. Various appropriate FDA approved medical grade adhesives are well known in the art.

An ultraviolet absorbing material 20 is applied to be coextensive with eye covering portions 18. In one embodiment, ultraviolet absorbing material 20 is a flat, flexible film. The thickness of substrate 12 and absorbing material 20 is exaggerated in FIG. 3 for clarity. Ultraviolet absorbing material 20 preferably has a transmittance about or less than 0.001 in the wavelength range between about 200-320 nanometers, and a spectral transmittance about or less than 0.01 in the wavelength range between about 320-400 nanometers. Preferably, ultraviolet absorbing material 20 allows a percentage of visible light over 400 nanometers to pass.

Materials, such as films, having these properties are well known in the art. Alternately, the ultraviolet absorbing material is painted or sprayed on the substrate. An equivalent result of a coextensive area for eye coverage and absorption is achieved by forming the substrate from several joined pieces having different radiation properties or forming the ultraviolet portions integrally with the substrate and transitioning from a non-ultraviolet absorbing portion to an ultraviolet absorbing portion.

Preferably eye covering portions 18 are approximately the same size or slightly larger than the user's eyes. Contact adhesive can be applied to eye covering portions 18 in a less desired embodiment, but it is preferred that eye covering portions do nor adhere to the individual's eyes. Preferably, at least a central area without adhesive is provided on the eye covering portions and sufficient clearance is allowed between the eyes and the substrate to allow the individual to close his or her eyes or blink normally. Eye covering portions 18 and the ultraviolet absorbing material 20 can be formed in various well-known geometric shapes such as ovals, rectangles, or squares.

As illustrated in FIG. 6, eye protector 10 is packaged on a backing member 30. Backing member 30 is preferably made from a substantially flat, flexible material and has a surface area at least as large, but preferably slightly larger, than the surface area of eye protector 10. When assembled, eye protector 10 is placed

flat on backing member 30 and held in place by contact adhesive 16 (see Fig. 4). Backing member 30 is preferably made from a plastic sheet material, waxed paper, or a similar material known in the art and used to removably contact adhesive. One example of an appropriate backing member is white, siliconized bleached Kraft paper.

For bulk packaging, multiple eye protectors 10 can be placed on a backing member 30 which is configured in a foldable sheet or roll. As illustrated in FIG. 7, backing member 30 can be formed into a roll 32 including perforations or scoring 35. For dispensing, backing member 30 may be cut or torn at perforations or scoring 35 to form sub-packages 37 having at least one pair of protective eyewear 10 each. The roll can be made with a width approximately as wide or slightly wider than the eyewear with the eyewear parallel to each other, or the roll can have a narrow width with the eyewear arranged end-to-end. In a further embodiment, backing member 30 can be folded into connected sheets and unfolded as needed for dispensing.

When used by an individual, eye protector 10 is removed from backing member 30. The eyewear is then situated over the user's face in a manner similar to standard glasses or goggles, with the eye covering portions substantially covering the user's eyes, the bridge portion over the user's nose and temple segments 14 pressed against the user's temples. The contact adhesive 16 contacts the user's skin along the temples and/or on the bridge of the nose or around the eyes, and functions to hold eye protector 10 in place. Preferably, ultraviolet radiation is substantially absorbed by the absorption material while the ultraviolet radiation penetrates temple segments 14 and bridge portion 15.

While using the eyewear, the user can preferably see through the eyewear at least partially in the visual spectrum to allow navigation, movement and for performing some manual tasks, such as using tanning bed controls. When the user is done tanning, the portions with adhesive are removed from the skin. The eyewear can then be discarded. Although it is possible to reuse the eyewear, the adhesive loses strength with additional use.

Substrate 12 or ultraviolet absorbing material 20 can be adorned with designs or text for decorating, advertising or information purposes. The substrate and ultraviolet absorbing materials can be made in a variety of colors and shapes so long as their radiation properties are maintained.

In further alternate embodiments, eyewear 10 can be made without ultraviolet absorbing material 20 and used for protecting an individual's eyes in non-tanning situations. In one such embodiment, substrate 12 can be substantially optically transparent and is used to protect the individual's eyes from irritants such as dust or airborne particles. In another embodiment, substrate 12 can be made overall from an ultraviolet absorbing material.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected.

What is claimed is:

1) An eye protector to minimize eye exposure to ultraviolet radiation, comprising:
   a) a flexible, substantially flat substrate member, wherein said substrate includes
      i) two eye covering portions;
      ii) a bridge portion connecting said eye covering portions;
   b) an ultraviolet absorbing material coextensive with said eye covering portions; and,
   c) contact adhesive applied to at least portions of said substrate member.

2) The eye protector of claim 1 wherein said flat substrate member further comprises temple segments extending from opposing ends of said eye covering portions and said contact adhesive is applied to at least said temple segments.

3) The eye protector of claim 2 wherein said substrate is substantially transparent to ultraviolet radiation

4) The eye protector of claim 3 wherein said ultraviolet absorbing material is formed from a flexible film applied to said eye covering portions.

5) The eye protector of claim 3 wherein said ultraviolet absorbing material is integrally formed with said eye covering portions.

6) The eye protector of claim 4 wherein said ultraviolet absorbing material is formed in oval segments.

7) An eye protector package, comprising:
   a) a substantially flat backing member;
   b) a flexible, substantially flat substrate member wherein said substrate includes:

i) two eye covering portions;

ii) a bridge portion connecting said eye covering portions; and

c) an ultraviolet absorbing material applied to said eye covering portions; and,

d) a contact adhesive applied to said flat substrate member wherein said contact adhesive removably adheres said substrate to said backing member.

8) The package of claim 7 wherein said flat substrate member further comprises temple segments extending from opposing ends of said two eye covering portions and where said contact adhesive is applied to at least said temple segments.

9) The package of claim 8 wherein said substrate is substantially transparent to ultraviolet radiation.

10) The package of claim 9 wherein said substrate is substantially transparent to optical radiation.

11) An eye protector to minimize an individual's eye exposure to ultraviolet radiation, comprising:

a) a substrate member having eye covering portions and temple segments;

b) an ultraviolet absorbing material applied to said eye covering portions; and,

c) a contact adhesive applied to said temple segments wherein said contact adhesive removably adheres said substrate to the individual.

12) An eye protector for an individual's eyes, comprising:

a) a substrate member having portions covering two of an individual's eyes, wherein said eye covering portions provide sufficient clearance to permit the individual's eyes to freely open or blink; and,

b) a contact adhesive applied to said substrate member to removably adhere said substrate to the individual wherein a central area of the eye covering portion over each of the individual's eyes is free of adhesive.

13) The eye protector of claim 12 wherein said substrate member further comprises temple segments and wherein said contact adhesive is applied to at least said temple segments.

14) The eye protector of claim 12 wherein said substrate member is substantially optically transparent.

15) The eye protector of claim 12 wherein said substrate member is substantially ultraviolet absorbing.

16) The eye protector of claim 12 wherein said substrate member is eye covering portions are substantially ultraviolet absorbing.

17) A method of packaging eye protectors, comprising the steps of:

a) providing a substantially flat backing member;

b) removably mounting at least one substantially flat eye protector to said flat backing member with contact adhesive wherein each said eye protector includes a substrate and two ultraviolet absorbing eye covering portions.

18) The method of claim 17 wherein a plurality of said flat eye protectors are mounted to said flat backing member.

19) The method of claim 18 further comprising the step of perforating or scoring said backing member to facilitate separation of said backing member into sub-packages wherein at least one eye protector is mounted to each sub-package.

20) The method of claim 19 wherein said flat backing member is a foldable sheet.

21) The method of claim 19 wherein said flat backing member is configured in a roll.

22) A method for an individual to use an eye protector package, comprising:

a) removing a flexible, substantially flat substrate member from a substantially flat backing member wherein said substrate includes at least one ultraviolet absorbing portion to cover an individual's two eyes and wherein said substrate includes at least one adhesive area;

b) placing said substrate member over an individual's face wherein said at least one ultraviolet absorbing portion is aligned over the individual's eyes; and

c) removably adhering said substrate to the individual's skin.

23) The method of claim 22 wherein said ultraviolet absorbing portion includes two eye covering portions and wherein said substrate includes a bridge portion said connecting eye covering portions.

24) The method of claim 22 wherein said substrate includes temple portions disposed on either end of said at least one ultraviolet absorbing portion with the temple portions containing said at least one adhesive area.

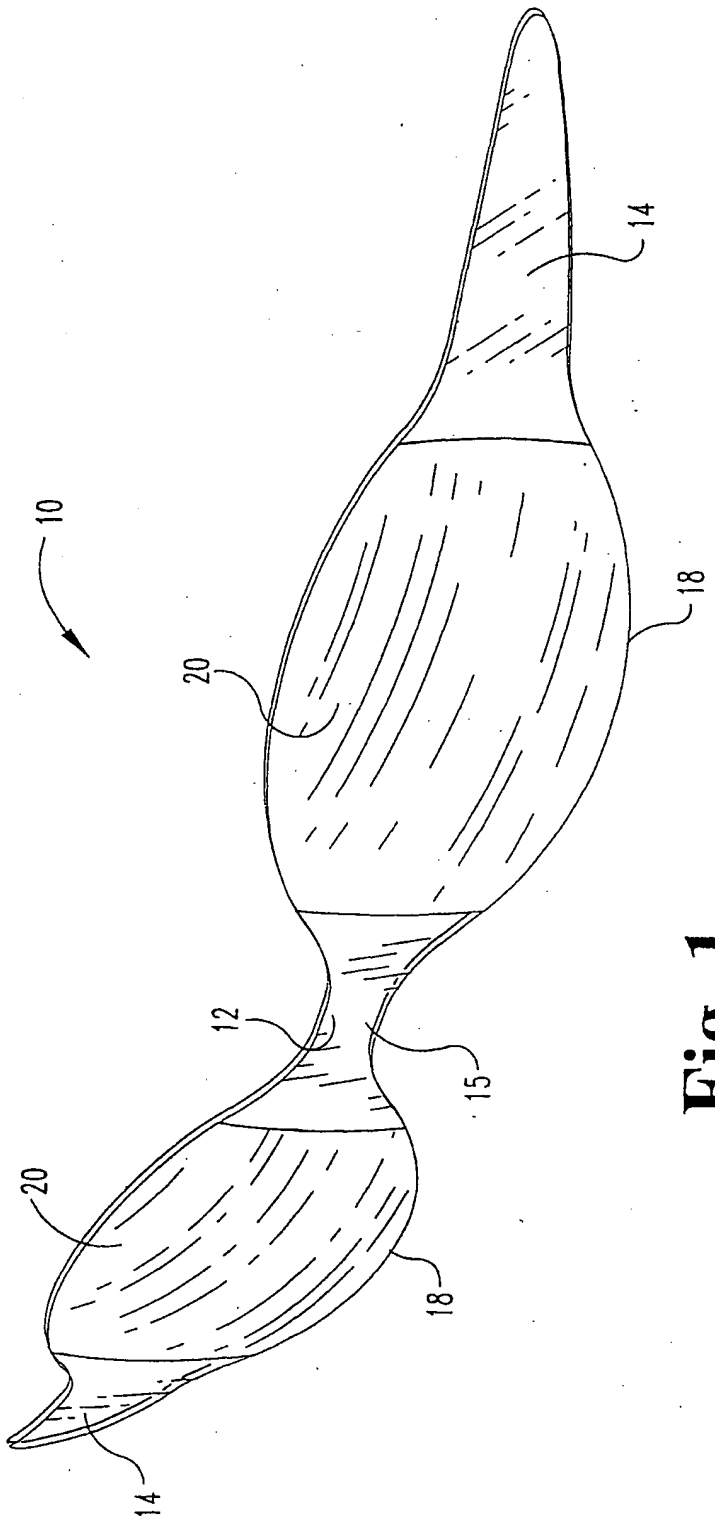

Fig. 1

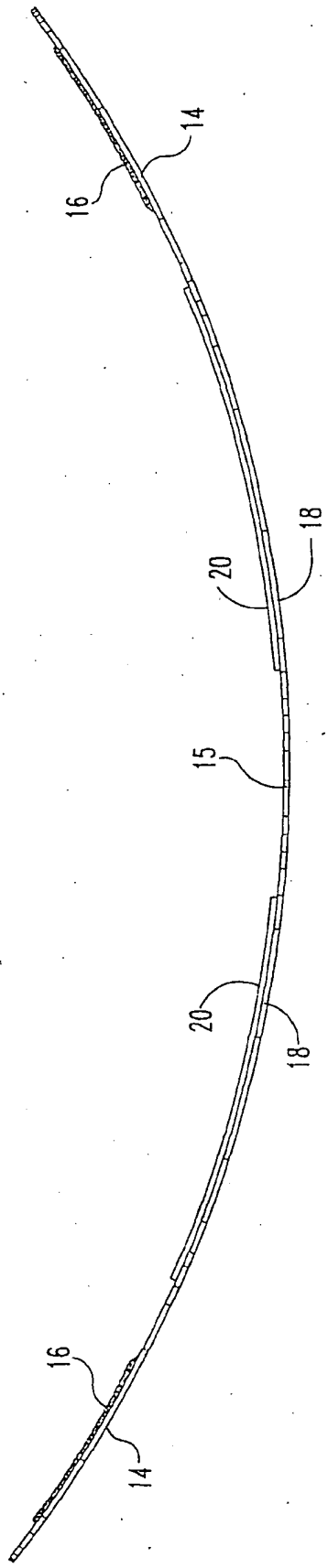

Fig. 2

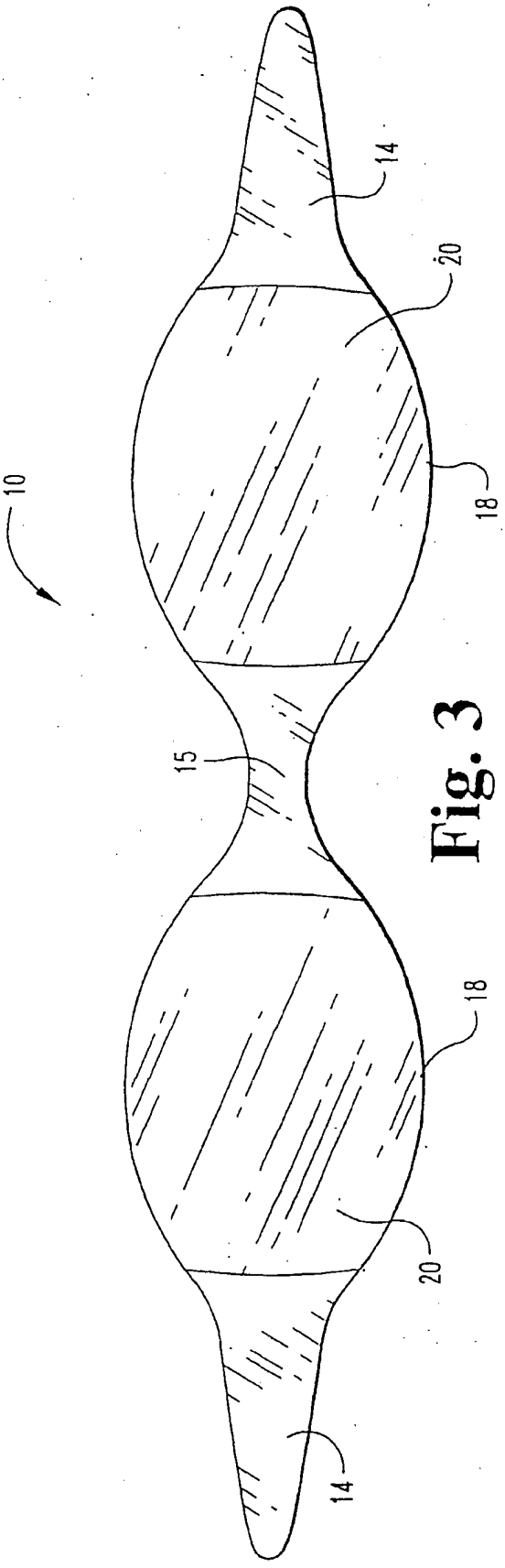

Fig. 3

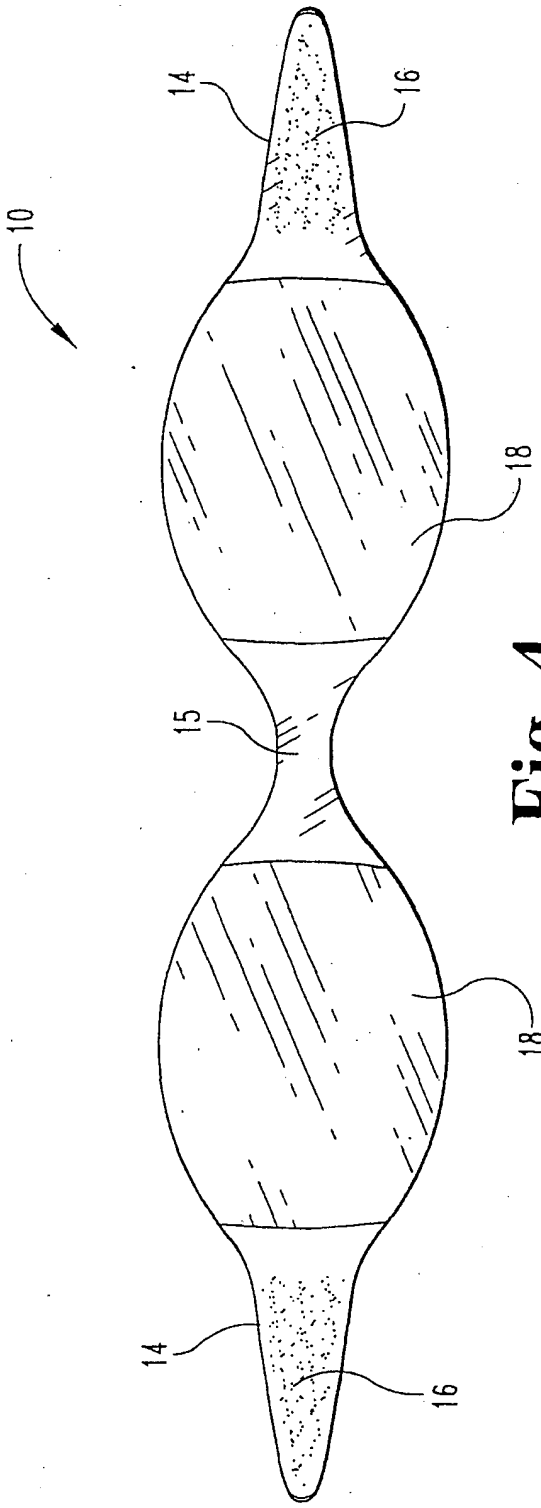

Fig. 4

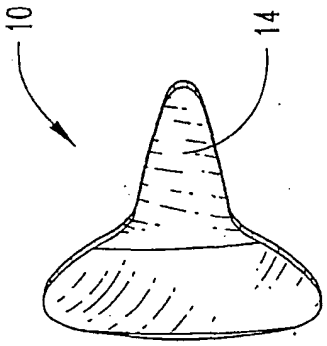

Fig. 5

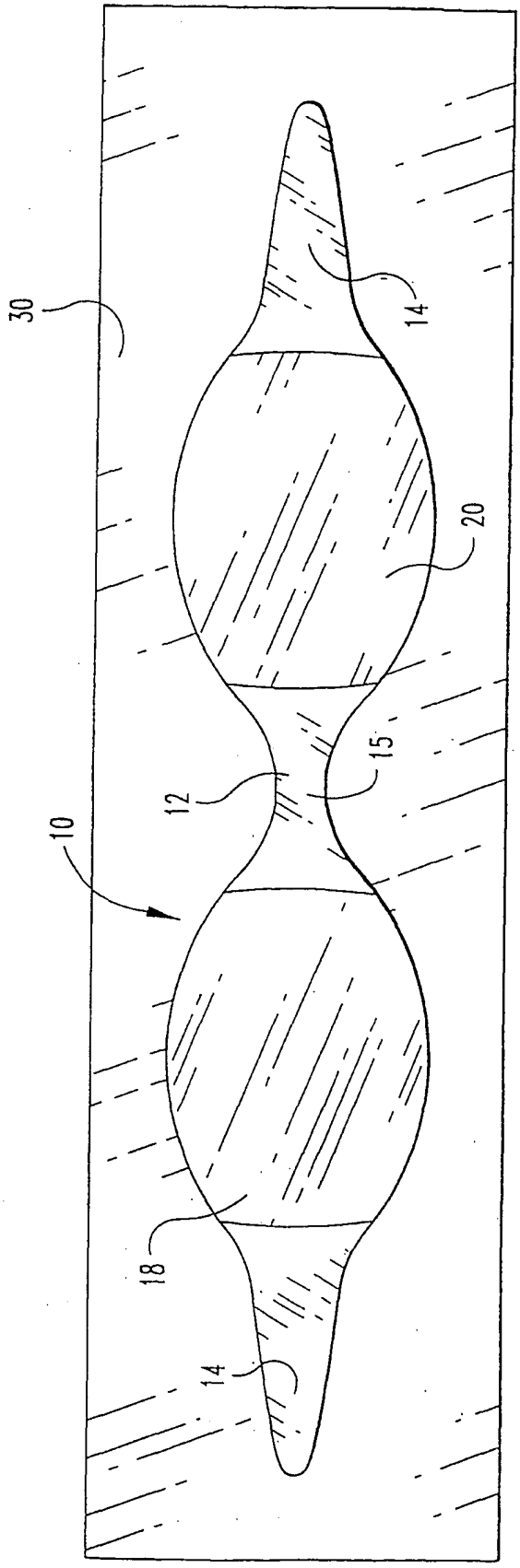

Fig. 6

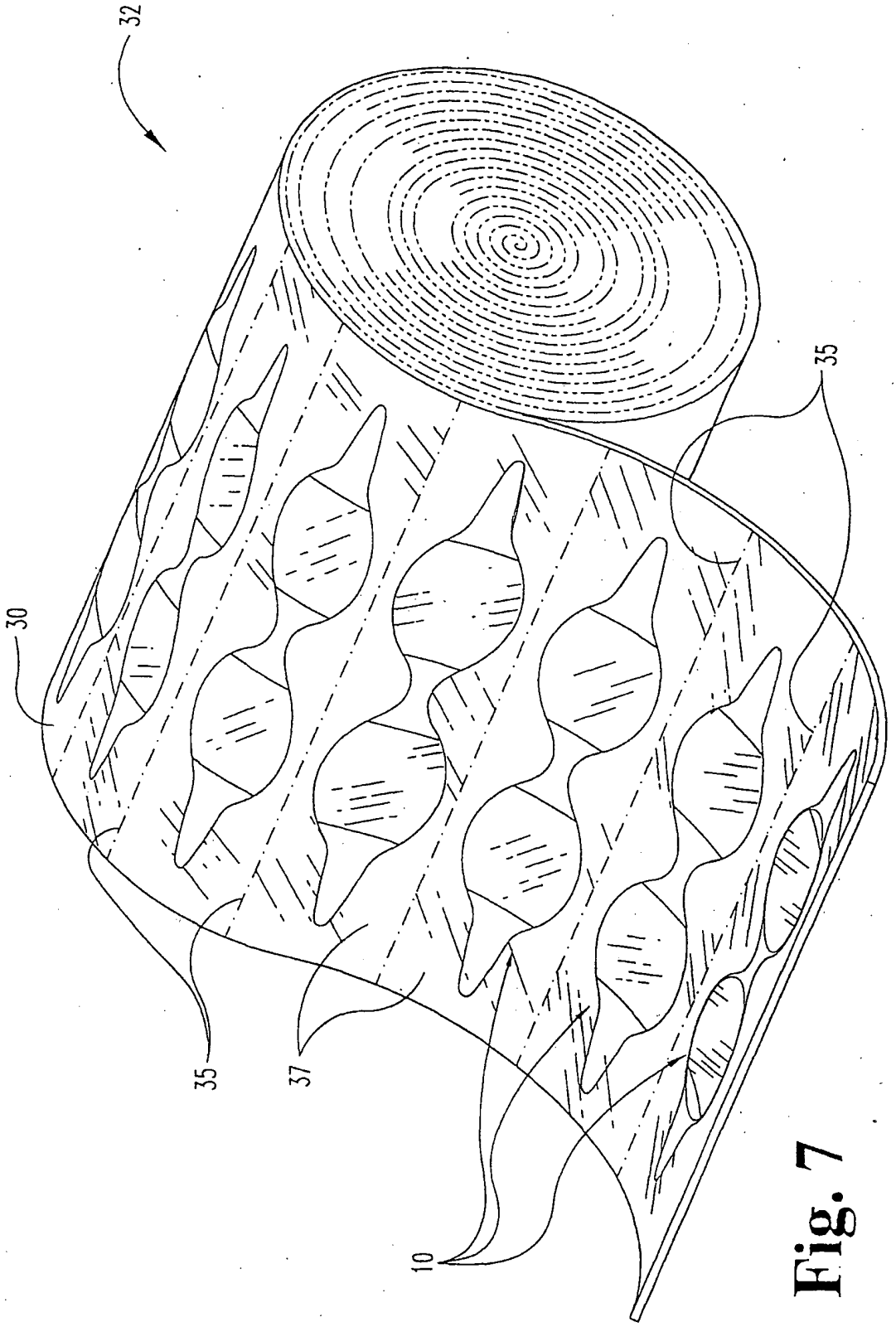

Fig. 7